MALSPII: Marine Aviation Logistics Support Plan II
A Critical Assessment of Change in Marine Aviation Logistics

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A Critical Assessment of Change in Marine Aviation Logistics
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Introduction

Most people know what they like because they like what they know. Marine aviation logistics support plan II (MALSPII) challenges an entire community of logisticians to like something that is new. It provides a new paradigm in logistics support that will enable the Marine aviation element (ACE) to reach those goals outlined in the Marine Corps' 2004 Aviation Plan[1]. MALSPII will be called upon to respond to the newest operational demands and transitional technologies in expeditionary aviation. The first operational implementation of MALSPII will be conducted in Iraq during the twelve month deployment of MALS-26 in 2005. While executing this trial-run it is critical to continue the indoctrination of the entire AVLOG community so they will understand the technological, cultural, and informational nuances between the old and new.

The Unmistakable Future

Past United States Marine Corps Commandants have shown foresight and direction with regard to these trends, and have provided for a fighting force that is uncannily adept at meeting today's global challenges. Over the past ten years the MAGTF has become increasingly responsive to the non-linear, asymmetric, and regional (non-hegemonist) composition of today's

[1] Lieutenant General Michael Hough, USMC Deputy Commandant for Aviation, Marine Corps Bulletin MCBUL 3125 (AVPLAN) (DC:Headquarters United States Marine Corps, 2004)

enemy. Their cumulative foresight has provided for a cohesive charter that has developed within the doctrinal constructs known as: operational maneuver from the sea (OMFTS), ship to objective maneuver (STOM), strategy 21, and sea-basing. Today the capstone operational concepts are expeditionary maneuver warfare (EMW) and enhanced network sea basing. Both concepts eliminate the traditional chokepoint of the beachhead, and require combat and supporting units to move directly to the inland objective.

The Marine aviation plan (AVPLAN) for fiscal year (FY) 2004 provides a graphic overview of Marine Aviation's total force organization, unit capabilities, and transitions for the next fifteen-year period.[2] The next decade and a half will see the air combat element (ACE) transition every legacy model aircraft platform to a new transitional model, and the introduction of these new aircraft will have a revolutionary effect on logisticians. The Marine Corps will execute this transition while fighting the war on terrorism and remaining responsive to a spectrum of additional global requirements. Marine AVLOG supports Marine aircraft and therefore has no other choice but to meet the future with new systems that will both anticipate and support future operations.

[2] Lieutenant General Michael Hough, USMC Assistant Commandant for Aviation, Marine Corps Bulletin MCBUL 3125 (AVPLAN) (DC:Headquarters United States Marine Corps, 2004)

Today’s leaders within the Marine aviation logistics community constitute the principals, plank holders, and stakeholders who have the responsibility of meeting the challenges presented by the aviation transformation Marine Corps Bulletin (AVPLAN). Their abhorrence to the missions’ unparalleled challenges, adaptation of best business practices, and execution of trust tactics within the next fifteen years will redefine the role Marine logisticians play within the Marine air ground task force (MAGTF) for the next half-century.

Why Change?

For the past sixteen years, the Marine Aviation Logistics Support Program I has met aviation needs within the ACE. During that time, MALSPI earned a record for successfully supporting both garrison and deployed aircraft. It constituted the foundation for Marine AVLOG. In addition to the changing future facing Marine AVLOG, the United States Navy’s over-arching system of aviation logistics, under which MALSP I operates, has begun to demonstrate critical vulnerabilities within its own structures of command and control, industry, and design. The greater logistics system emerged from a functionally organized community within which activities were segregated by competing sources of funding or guardianship. As a result the logistics system contains several activities that operate within their own stovepipes, often with little awareness of the overall warfighting goal. Naval aviation depots (NADEP), naval industrial control points (NAVICP), defense logistics activities (DLA), and civilian military contractors are examples of key command and control nodes and activities that perform specific functions within the logistics supply system without synchronicity.

These faults have emerged as challenges to the logistics system's viability and relevance during contemporary operations. The aviation logistics operational advisory group charged with analyzing aviation logistics in the aftermath of Operation IRAQI FREEDOM I (OIF I), finds "a lack of data interfaces between systems [that] degraded ability to track and coordinate material movement in theater."[3] The AVLOG community employs a host of non-interfacing and legacy software products to perform the critical functions of aviation logistics. The Marine Corps must adopt a single and enterprise system to meet these challenges.

Most in-depth analysis of leveraging best business practices suggest aviation logisticians would do well to transform along the same lines as the global logistics community. The changes in technologies, information systems, and systems management philosophies as well as the demands placed on today's MAGTF multiply their effects on the MALSPI and all but overwhelm it. The Marine Corps designed MALSPI to

[3] Pierre C. Garant, "The Transformation of Marine Aviation Logistics," Marine Corps Gazette, May 2004, 34.

employ a push-supply philosophy. Fixed allowance resource packages consisting of aircraft parts, were pushed forward in close proximity of the garrison and deployed aircraft. This required a large footprint, and the quality of response was only as good as the selection of aircraft parts that constituted the resource packages. It lent itself to a reactionary system that was incapable of predicting and acting in anticipation of an upcoming requirement. (See Figure 1)

No singular design is ever perfect. The mission requirements for which MALSP I was designed have changed so much over the last decade that it has became essential to re-identify the system’s global goal. In making this analysis the Marine Corps adopted several commercial management and industry philosophies. Six sigma, performance based logistics (PBL), and theory of constrains (TOC) are examples of better business practices from which the AVLOG community has adopted concepts. Most notably, the application of theory of constraints to the tenets of the original MALSPI concept enabled the AVLOG community to derive and inovate the MALSPII concept. [4]

The New Design: MALSPII

Colonel Garant, the system’s leading architect best summarizes the design requirements for MALSPII by saying: “What

[4] Eliyhu Goldratt, Theory of Constraints. (Mass:The North River Press: 2002) p.4. Theory of Constraints is a management philosophy written by Eliyahu M. Goldratt that focuses on the intuitive powers to remedy corporate problems through a systematic approach, often focusing on the bottlenecks within that organization.

is needed is a fundamental shift in how to confront Murphy [synonymous with Murphy’s Law] in every aspect of the business of expeditionary aviation logistics.”[5] The emphasis in this statement is placed on the ability of the aviation logistician to meet every challenge with a proactive system. The new transitional aircraft of the immediate future, such as the MV-22 Osprey, joint strike fighter, and emerging unmanned aviation vehicles (UAVs), contain technologies that influence the fundamentals of Marine AVLOG. The Marine Corps has procured transitional aircraft equipped with onboard autonomic and prognostic sensors that will provide informational feedback during flight as to the state of the aircraft. These signals will interface with the AVLOG system, placing the emphasis on data management rather than parts management, and ultimately create a demand-pull relationship.

The employment of resource packages, or pack-ups consisting of aircraft parts will remain. More statistically rational calculations will determine the quality and type of parts to be allocated to these packages. They derive calculations from the relations between patterns of demand (usage of parts exhibited by each individual aircraft model) and time to reliably replenish (the most exhaustive time value that can be assigned

[5] Colonel Pierre C. Garant (USMC), “The Transformation of Marine Aviation Logistics,” Marine Corps Gazette, May 2004, 34. Colonel Garant is currently serving as the Assistant Branch Head, Aviation Logistics Support Branch, department of Aviation, HQMC.

to replace or repair a part within the AVLOG system). As a result, these packages will provide a known time buffer until they require replenishment of resources from the greater supply system. The buffers (resource packages) are established throughout the Marine AVLOG's logistical AOR in support of the ACE's operations, and the Marine aviation logisticians manage these buffers from a network of decentralized command and control nodes.[6]

Advanced Theory of Constraints

When ushering in such a culturally and systemically significant change to Marine AVLOG the theory of constrains was adopted to provide the doctrinal direction throughout all phases of the change. TOC provided the philosophical guidelines to be applied to the Marine Corps' logistics goals that were necessitated by the AVPLAN. After considering the design of MALSPI, aviation logisticians began to investigate commercial applications of logistics and industry management philosophies. The Marine Corps adopted and applied Eliyahu M. Goldratt's theory of constraints (TOC) to the operations at two distinct Marine aviation logistics squadrons (MALS).

[6] Colonel Pierre C. Garant (USMC), interview 14 Sep 2005.

TOC identifies five steps to be taken when assessing any operations system. They include:

1. Identify the system’s constraints
2. Decide how to exploit the system’s constraints
3. Subordinate everything else to the above decision
4. Elevate the systems constraints
5. If in the previous steps a constraint has been broken (eradicated),return to step 1.[7]

The results of the analysis were not immediately clear. Initially, the MALS classified the support rendered to the Marine Air Group flying squadrons in much the same way a manufacturer arrives at a finished product in a manufacturing facility. As a result, functional subdivisions within the MALS, such as workshops, became the individual machines within the theoretical assembly line. Each workshop provides both maintenance and supply parts to the ACE.

Eventually, the Marine Corps applied the assembly line approach to design analysis beyond the boundaries of the MALS to the greater AVLOG system. When a MALS interfaces with the strategic aviation logistics systems and activities, and the commercial resources of transportation via the greater commercial carriers, it performs within the global logistics system. This macro-analysis provided for the time buffer approaches discussed in the previous section.

[7] Eliyhu Goldratt, Theory of Constraints. (Mass:The North River Press: 2002) p.4

Measures of Effectiveness

	USMC MALSP I	BEST BUSINESS PRACTICES	USMC MALSPII
SUPPLY-PUSH	CORNERSTONE		n/a
DEMAND-PULL	often after depletion of resources and at max penalty	Nike Inc Caterpillar Ind	CORNERSTONE interface w/ air craft prognostic sensors optimize buffers
VELOCITY OF CYCLES	DAYS OF USAGE DEPTH FIXED ALLOWANCE RESOURCE PACKAGING	24hr guarantees or monetary compensation	"TIME BUFFER" DEPTH determined by statistically rational calc
LEAN TRANSPORT FLOWS	surge and spike in reaction to expeditious repair (reaction)	no need for agility associated w/ MAGTF consistent and measurable throughput	increased agility consistent and measurable throughput
ENHANCED VISIBILITY (C2 BUFFER MANAGEMENT)	REACTIONARY Centralized package managers become "firemen"	decentralized	PROACTIVE decentralized "buffer management"
FOOTPRINT EXPEDITIONARY SCALABLE DECENTRALIZED	LARGE FOOTPRINT material and personnel	SMALL FOOTPRINT 3rd party	SMALL FOOTPRINT "AVLOG managers"

Figure 1

Conclusion

As the ACE transitions from legacy to transition aircraft, so too must the AVLOG system transform. The predominance of legacy operating systems have stove-piped the operations within today’s AVLOG activities. In addition, the AVLOG community employs a multitude of legacy software products to perform the most critical AVLOG functions. The adaptation of MALSPII will enable the AVLOG community to harness best business practices, and restructure the greater logistics system to provide an unprecedented model. No other circumstance has presented a single generation of aviation logisticians with a more challenging and important mission. They will accomplish this task by implementing the concepts of MALSPII to the already proven concept of the Marine culture and expeditionary excellence.

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